WHAT IS CLAIMED IS:

(1) An optical transmitter comprising;

an input terminal for accepting an electrical binary signal,

bandwidth restriction means for restricting bandwidth of said electrical binary signal,

an electrical-optical conversion means for converting said electrical signal which is bandwidth restricted by said bandwidth restriction means to an optical signal,

an amplifier for amplifying an input signal of said electrical-optical conversion means so that said input signal has enough level for operating said electrical-optical conversion means,

wherein said bandwidth restriction means locates between an output of said amplifier and an input of said electrical-optical conversion means.

(2) An optical transmitter according to claim 1, wherein

a precoding means is provided at an input stage of said amplifier,

said precoding means provides a binary output which is the same as the previous output when an input binary digital signal is 0, and an output which differs from the previous output when an input digital signal is 1, and

said bandwidth restriction means is a low-pass filter which generates a ternary duobinary

signal.

(3) An optical transmitter according to claim 2, wherein said electrical-optical conversion means provides the maximum level of optical output for an input electrical signal having the maximum level and the minimum level, the minimum level of optical output for an input electrical signal having middle level between said maximum level and said minimum level, and optical phase of said maximum level of said optical signal is opposite of optical phase of said minimum level of said optical signal.

(4) An optical transmitter according to claim 3, wherein said electrical-optical conversion means is a Mach Zehnder light intensity modulator having a pair of electrodes which are driven by ternary electrical duobinary signals having opposite polarities.

(5) An optical transmitter according to claim 1, wherein at least two of said bandwidth restriction means, said electrical-optical conversion means, and said amplifier are integrated in a single module.

(6) An optical transmitter according to claim 5, wherein said electrical-optical conversion means has function as said bandwidth restriction means.

(7) An optical transmitter comprising;

an input terminal for accepting an electrical binary signal,

an electrical-optical conversion means for converting an electrical signal to an optical signal,

an amplifier for amplifying an input signal applied to said input terminal to level requested for operating said electrical-optical conversion means, and applying the amplified electrical signal to said electrical-optical conversion means,

said electrical-optical conversion means having a travelling wave type electrode operating to restrict bandwidth of an output light of said electrical-optical conversion means.

(8) An optical transmitter according to claim 6 or claim 7, wherein said electrical-optical conversion means is a Mach Zehnder light intensity modulator having a travelling wave type electrode, and bandwidth of optical output of said Mach Zehnder light intensity modulator is restricted by using loss of said travelling wave type electrode.

(9) An optical transmitter according to claim 6 or claim 7, wherein said electrical-optical conversion means is a Mach Zehnder light intensity

modulator having a travelling wave type electrode, and bandwidth of optical output of said Mach Zehnder light intensity modulator is restricted by using mismatching of phase velocity of electric wave propagating said travelling wave type electrode and optical wave propagating in an optical waveguide having refractive index depending upon electrical field generated by said electric wave.

(10) An optical transmitter according to claim 8 or claim 9, wherein;

a precoding means is provided at an input stage of said amplifier,

said precoding means provides an output which is the same as the previous output when an input binary digital signal is 0, and an output which differs from the previous output when an input digital signal is 1, and

said travelling wave type electrode is designed so that phase change of optical wave propagating in said optical waveguide depending upon said electrical field has waveforms of a ternary duobinary signal.

(11) An optical transmitter according to claim 10, wherein said electrical-optical conversion means provides the maximum level of optical output for an input electrical signal having the maximum level and the minimum level, the minimum level of

optical output for an input electrical signal having middle level between said maximum level and said minimum level, and optical phase relating to said maximum level of said optical signal is opposite of optical phase relating to said minimum level of said optical signal.

(12) An optical transmitter according to claim 11, wherein said electrical-optical conversion means is a Mach Zehnder light intensity modulator having a pair of electrodes, each of which is a travelling wave type electrode having bandwidth restriction property, and electrical signals applied to each electrodes are binary signals having opposite polarities with each other.

(13) An optical transmitter according to claim 9, wherein travelling direction of said electrical signal in said electrode is opposite to travelling direction of optical signal in said optical waveguide.

(14) An optical transmitter according to claim 9, wherein said Mach Zehnder light intensity modulator is provided on a substrate of Z-cut Lithium-Niobate.

(15) An optical transmitter according to claim 9, wherein said Mach Zehnder light intensity modulator is provided on a substrate of X-cut

Lithium-Niobate.

(16) An optical transmitter according to claim 8, wherein loss in said travelling wave type electrode at f0/2 is always larger than loss at frequency higher than f0/2, and modulation efficiency of said Mach Zehnder light intensity modulator at f0/2 is larger than that at frequency higher than f0/2, where f0 is clock frequency of said electrical binary signal.

(17) An optical transmitter according to claim 9, wherein modulation efficiency of said Mach Zehnder light intensity modulator at f0/2 is always larger than that at frequency higher than f0/2, where f0 is clock frequency of said electrical binary signal.